

Amendment Under 37 C.F.R. §1.111
Application No. 10/517,049
Attorney Docket No. 043062

AMENDMENTS TO THE SPECIFICATION

Please amend the specification as follows:

Amend the paragraph bridging pages 4-5 as follows:

In the Damascene wiring formation of copper or copper alloy or the metal-embedding formation such as plug wiring formation of tungsten or the like, if the polishing rate of the silicon dioxide film as the interlaminar insulating film formed at the portion other than the embedded portion is also large, there arises the phenomenon of “thinning” in which reduction of wiring thickness and reduction of thickness of the interlaminar insulating film simultaneously occur. As a result, since there is generated variation in resistance due to the increase in the wiring resistance, the pattern density or the like, a characteristic that the polishing rate of the silicon dioxide film is sufficiently smaller than that of the metal film to be polished is required. Therefore, there has been proposed a method in which pH of the polishing liquid is made higher than the negative value of the logarithm of the dissociation constant K_a pK_a (pK_a) of the first dissociable acid group of an oxidized metal dissolving agent - 0.5 by suppressing the polishing rate of silicon dioxide by the action of an anion produced as a result of dissociation of an acid. This technique is disclosed, for example, in Japanese Patent No.2819196.

Amend the second full paragraph page 8 (numbered lines 9-18) as follows:

(1), That is, the invention relates to a polishing slurry comprising: a metal-oxidizing agent; a metal anticorrosive agent for protecting metal surface; an oxidized metal dissolving agent; and water, the oxidized metal dissolving agent being at least one kind selected from the

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group consisting of an acid in which the negative value of the logarithm of the dissociation constant K_a (pKa) of a first dissociable acid group is 3.5 or more, an ammonium salt of the acid and an organic acid ester of the acid, the pH of the polishing slurry being within the range of 3 to 4, the concentration of the metal-oxidizing agent being within the range of 0.01 to 3 percent by weight.

Amend the first full paragraph on page 13 (numbered lines 3-21) as follows:

The oxidized metal dissolving agent of the invention is at least one kind selected from the group consisting of an acid in which the negative value of the logarithm of the dissociation constant K_a (pKa) of a first dissociable acid group is 3.5 or more, an ammonium salt of the acid and an organic acid ester of the acid. There are no particular limitations as long as the oxidized metal dissolving agent is water-soluble. However, organic acids are preferable in view of the etching properties of the metal, and examples of the organic acids include lactic acid, succinic acid, adipic acid, glutaric acid, benzoic acid, quinaldic acid, butyric acid, valeric acid, salicylic acid, glyceric acid and pimelic acid. Of these, lactic acid, succinic acid, adipic acid, glutaric acid, benzoic acid, quinaldic acid, butyric acid and valeric acid or the like are more preferable. The other examples include the ammonium salt of these acids and the organic acid ester thereof. It is also effective to use together at least two kinds of acids, ammonium salts or organic acid esters because the etching rate can be effectively suppressed with maintaining a high, practically acceptable CMP rate.